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(54) Coated gelatin capsules

(57) A comestible product comprises a gelatin capsule with a flavoured coating and containing a fill material. The capsule cannot easily be interfered with, and if tampering has occurred, there should be visible evidence. Characteristics of the coating; eg flavour, composition and thickness, are selected to achieve specific ends.

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COATED GELATIN CAPSULES

This invention relates to gelatin capsules, and particularly capsules of soft gelatin. Capsules of this type are now well established as a means for providing a variety of products in a readily ingestible form.

5 Known apparatus for producing gelatin capsules comprise either flat or rotary dyes having recesses against which the capsule wall is shaped. Gelatin ribbon is shaped in the recesses, where the fill material is introduced. Rotary dye apparatus is described in an
10 article entitled "Soft Gelatin Capsules: a solution to many tableting problems" published in Pharmaceutical Technology in September 1985.

According to the present invention, a comestible product comprises a gelatin capsule containing a fill
15 material, the capsule having a coating which may be flavoured. An advantage of the invention is that such coated capsules cannot easily be interfered with, and if tampering has occurred, there should be visible evidence. Another advantage is the ease with which characteristics
20 of a coating; eg composition and thickness, can be selected to achieve specific ends. If the fill material is medicinal, and the product is to be swallowed, then the coating can be used to control and delay the release of a medicament. If the coating is flavoured or
25 sweetened, the result is a more palatable product than the uncoated capsule, and therefore suitable for masking the taste of therapeutic or medicinal fill materials.

The material of the capsule wall is preferably soft rendering the product chewable, even if the coating is in
30 the form of a crust. Particularly preferred capsule wall compositions are described in co-pending Application No. 9313329.6 in the name of R.P. Scherer Limited, to which reference is directed.

It will be appreciated that in products according to
35 the invention the coating will normally be sweetened.

Typical coatings will comprise sugar or chocolate, but a wide variety of flavours can be incorporated. The coating may be applied using known panning or fluidised bed techniques, which enables a wide range of ingredients to be included. The thickness of the coating can be selected according to the nature of the end product, and is commonly related to a dimension of the capsule itself. For example, if the capsule is spherical, the coating might be of a uniform thickness in the range of one tenth to one third of the capsule diameter.

The fill material in comestible products according to the invention is normally a liquid, but this is not essential. Soft semi-solid pastes can be used, as can solid or particulate materials in some applications. Solid fill materials which soften and eventually melt or dissolve in the mouth can be particularly useful. In this respect, the invention enables a wide variety of materials to be provided in a palatable form using essentially the same manufacturing technique.

Whereas the invention is particularly applicable to the encapsulation of therapeutic and medicinal fill materials, it is also applicable to items of confectionery. For example, a cream or paste filling having a particular flavour can be encapsulated and then coated with sugar or chocolate for example to produce a sweetmeat. Solid fillings can be coated in this way which might otherwise deteriorate in direct contact with a coating material. Liquid filled confections of this type can also be usefully made according to the invention again for the reason that the filling has merely to be encapsulated in the gelatin shell, and the coating may be selected subsequently. This aspect of the invention can be exploited to produce products comparable to liqueur chocolates.

As noted above, the application of a coating to a filled gelatin capsule according to the invention has the advantage of masking unpleasant tasting fill materials

which are commonly used as therapeutic and medicinal agents. Whereas previously taste masking flavours have been incorporated in the fill material or the material of the capsule shell, this provides only a limited range of
5 flavours as whatever is used must be compatible with other ingredients in the respective component. Because in the present invention the fill material can be encapsulated separately from the application of the flavoured coating, the quantity of the fill material and
10 the encapsulation process itself can be very accurately controlled. The provision of the coating can mask not only any unpleasantness in the taste of the fill material, but also any odours that might escape. The coating allows the product to be coloured according to
15 choice, which can assist in presenting an attractive product. Colouring can also be used as a ready means of identification, for a range of purposes. Safety is one such purpose, particularly valuable for medicinal products. Ease of selection is another, valuable for
20 therapeutic and confectionery products, and for food supplements.

Products according to the invention can use rigid or soft gelatin capsules, and the present invention is particularly suited to the manufacture of chewable
25 capsules forming items of confectionery. As noted above, the coating can provide for the introduction of multiple flavours, and the physical protection that the coating provides enables the use of softer capsule shell formulations. This can also reduce the requisite
30 thickness of the capsule shell while the fill material is of course still safely encapsulated.

Particularly in confectionery products made in accordance with the invention, it will be appreciated that any or all of the three components thereof can be
35 flavoured and indeed, coloured. The result is a product which when bitten or cut through exposes a range of colours in different layers of the same or different

consistencies. In one example of a product according to the invention, a semi-solid paste fill, flavoured with cherry was encapsulated in a soft gelatin shell itself flavoured with menthol and coloured red. Each capsule weighed approximately 1.8 grammes. The capsules were then coated with sugar in a normal panning process to produce a final product weighing approximately 3.7 grammes. The outer coating was coloured yellow and green, and was substantially rigid. The capsules remained intact and unchanged during the panning process, and the resulting product was a soft centred crunchy confectionery product.

CLAIMS

1. A comestible product comprising a gelatin capsule containing a fill material, which capsule has a flavoured coating.
2. A product according to Claim 1 wherein the capsule wall comprises soft gelatin.
3. A product according to Claim 1 or Claim 2 wherein the coating is flavoured.
4. A product according to Claim 3 wherein the coating comprises sugar or chocolate.
5. A product according to Claim 3 wherein the fill material is liquid.
6. A product according to any preceding claim wherein the coating is applied by panning.
7. A product according to any preceding Claim wherein the fill material is therapeutic or medicinal, or a food supplement.
8. A product according to any of Claims 1 to 6 wherein the fill material is a confection.
9. A product according to any preceding Claim wherein the capsule is substantially spherical, and the coating is of a uniform thickness in range of one tenth to one third of the capsule diameter.
10. A product according to Claim 9 having an outside diameter in the range 5 to 30 mms.
11. A method of manufacturing a product according to any preceding Claim comprising encapsulating a fill material in a gelatin capsule, and applying a coating to the filled capsule.
12. A method according to Claim 11 wherein the coating is applied by panning.
13. A method according to Claim 11 or Claim 12 wherein the coating is applied to a thickness in the range 1 to 3 mm.

14. A method according to any of Claims 11 to 13 wherein the coating is applied to a thickness related to the diameter of the capsule.

5 15. A method according to Claim 14 wherein the relation between the capsule diameter and the coating thickness is in the range 3:1 to 10:1.

Patents Act 1977
Examiner's report to the Comptroller under Section 17
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Relevant Technical Fields

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M K B REYNOLDS

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Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

Documents considered relevant following a search in respect of Claims :-
1-15

(ii)

Categories of documents

- X: Document indicating lack of novelty or of inventive step. P: Document published on or after the declared priority date but before the filing date of the present application.
Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.
A: Document indicating technological background and/or state of the art. &: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1327761 (BUSH BOAKE)	1, 3, 5, 7, 11
A	EP 0245575 A (GREITER)	

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).